Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled)

2. (currently amended) A method for training at least one artificial learning-capable system comprising the steps of:

providing a predetermined training data set corresponding to ~~input data for each of~~ a ~~respective~~ predetermined number of subjects comprising a predetermined input data set and a predetermined outcome data set,

augmenting the input data set and/or the outcome data set according to predetermined criteria, ~~and~~

wherein the augmenting step comprises the steps:

observing survival data relating to patient survival of J subjects,

recording covariates denoted $x_q(j)$ at a reference time t=0, q=1, ..., Q (in vector notation **x**(j)), j=1, ... , J, referring to the subject number in any order,

recording special covariates denoted $z_p(j)$, p=1, ..., P (vector notation **z**(j)),

assuming each subject represents a random sample drawn from a large pool of subjects with identical covariates **x**, **z**, defining the conditional probability $S(t|\mathbf{x},\mathbf{z})$ for surviving to time t given **x**, **z**,

estimating the p-th propensity score $\phi_p(\mathbf{x}(j))$ of subject j for treatment p corresponding to the probability for subject j to have treatment $z_p=1$,

categorizing the propensity scores into a number N_p of categories, designated as strata, and

augmenting the input data set and/or the outcome data set by the propensity scores and/or the stratum categorization, and

training each artificial learning-capable system using the ~~augmented~~ input data set and/or the ~~augmented~~ outcome data set that was augmented according to the augmenting step, through the use of a computing device~~,~~

~~wherein the augmenting step comprises the steps:~~

~~estimating propensity score data for each said subject depending on corresponding input data,~~

~~dividing the propensity score data into at least two strata,~~

~~assigning each subject to a stratum according to predetermined criteria, and~~

~~augmenting the input data of each subject by its propensity score data and/or its stratum assignment~~.

3. (currently amended) The method according to claim 2, wherein the training step comprises ~~the step of~~

optimizing operating point parameters within each stratum.

determining the operating point corrections $OP_{kl}(\varphi_1, \varphi_2, \ldots, \varphi_P)$ for shifting the output of the neural network $NN_{kl}(\mathbf{X})$ with $\mathbf{X}=\{\mathbf{x},\mathbf{z}\}$, provided by the neural network, given the propensity scores $\varphi_1, \varphi_2, \ldots, \varphi_P$, considering a hazard model $\lambda_k(t \mid \mathbf{X}) = \lambda_{k0}(t)h_k(t \mid \mathbf{X}, \varphi_1, \varphi_2, \ldots, \varphi_P)$,

where *k* denotes the k-th outcome and the hazard is decomposed as

$$h_k(t \mid \mathbf{X}, \varphi_1, \varphi_2, \ldots, \varphi_P) = \exp\left[\sum_{l=1}^{L} B_l(t)(NN_{kl}(\mathbf{X}) - OP_{kl}(\varphi_1, \varphi_2, \ldots, \varphi_P))\right],$$

wherein $B_l(t)$ are suitable functions comprising the time dependence.

4. (previously presented) The method according to claim 3, wherein the operating point parameters are optimized such that the median of all output data of users assigned to each stratum vanishes.

5. (previously presented) The method according to claim 2, wherein the augmenting step comprises the step of:

generating a plurality of augmented training data sets by augmenting the input data set using a predetermined statistical model.

6. (currently amended) [[A]] The method ~~of training at least two learning-capable systems~~ according to ~~the method of~~ claim 5, wherein the training step comprises the steps of:

training each of at least two said artificial learning-capable ~~system~~ systems using a subset of the plurality of augmented training data sets,

constructing scores for each outcome for each said trained artificial learning-capable system, and

determining characteristics of distributions of the scores for each subject.

7. (previously presented) The method according to claim 6, wherein the input data set is augmented using a generalized Markov chain Monte-Carlo method.

8. (currently amended) The method according to claim 2, wherein the augmenting step comprises the steps of:

providing a further artificial learning capable-system and a further predetermined training data set comprising a further predetermined input data set and a further predetermined outcome data set for each of a respective further predetermined number of subjects,

training the further learning-capable system using the further predetermined training data set, and

augmenting the input data set by at least one additional input variable taken from the further predetermined input data set, further predetermined outcome data set and/or internal output data obtained from the trained further artificial learning-capable system.

9. (previously presented) The method according to claim 8, wherein the additional input variables comprise all further input data and all further outcome data of a subset of subjects of the further training data set.

10. (previously presented) The method according to claim 2, wherein the outcome data of the training data set is time-dependent and the augmenting step comprises pre-transforming a time variable of the training data set in such a way that an associated

hazard rate with respect to a predetermined outcome is a predetermined function of the time variable.

11. (currently amended) [[A]] The method ~~for using a learning-capable system trained~~ according to ~~the method of~~ claim 2 ~~by applying~~ wherein input data of a subject is applied to the trained artificial learning-capable system to generate an outcome of the artificial learning-capable system, and the method further ~~comprising~~ comprises correcting the outcome with respect to a predetermined reference subject.

12. (currently amended) The method ~~for using at least two learning-capable systems trained~~ according to ~~the method of~~ claim 7, wherein ~~by applying~~ input data of a subject is applied to at least two artificial learning-capable systems to generate output data of the artificial learning-capable systems, wherein applying input data comprises ~~comprising~~ the steps of:

presenting the input data of the subject to each of the artificial learning-capable systems and

constructing a score for the output data obtained from the artificial learning-capable systems.

13. (currently amended) [[A]] The method according to claim 2, further comprising ~~of~~ creating a composite training data set~~, in particular~~ for use in training [[a]] the artificial learning-capable system ~~according to the method of claim 2~~, wherein said creating comprises ~~comprising~~ the steps of:

providing an aggregated evidence data set,

disaggregating the aggregated evidence data set to obtain a disaggregated training data set based on virtual subjects, and

merging the disaggregated training data set with a further training data set to produce the predetermined training data set.

14. (previously presented) The method according to claim 13, wherein the merging step comprises the step of choosing a real training data set based on real subjects as the further training data set.

15. (previously presented) The method according to claim 13, wherein the disaggregation step comprises the step of assigning at least a value of one auxiliary variable to each virtual subject of the disaggregated training data set according to predetermined criteria.

16. (previously presented) The method according to claim 2, wherein the predetermined training data set is provided by:

providing an aggregated evidence data set,

disaggregating the aggregated evidence data set to obtain a disaggregated training data set based on virtual subjects, and

merging the disaggregated training data set with a further training data set to produce the predetermined training data set.

17. (previously presented) A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the steps of the method of claim 2, when said product is run on a computer.

18. (previously presented) A computer program product stored on a medium readable by a computer, comprising computer readable program means for causing a computer to perform the steps of the method of claim 2, when said product is run on a computer.

19. (previously presented) The method according to claim 5, wherein the input data set is augmented using a generalized Markov chain Monte-Carlo method.

20. (previously presented) The method according to claim 14, wherein the disaggregation step comprises the step of assigning at least a value of one auxiliary variable to each virtual subject of the disaggregated training data set.